Where there’s smoke, there’s science

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by Manvendra Dubey

It’s been a smoky summer in New Mexico and all around the West. Huge wildfires in the Pacific Northwest and Montana were in the news for weeks, spreading a fine haze across the Southwest, raising the obvious question: What’s in that smoke? A big fire gives off a big plume made up of a complicated and constantly changing mix of particles, gases, and other chemical compounds. Explosions — including nefarious detonations — can emit similar plumes.

To discover the finer points of smoke’s composition, Los Alamos National Laboratory has launched the Center for Aerosol Forensic Experiments — CAFE, for short. The lab has a long history of researching the atmosphere, work that stems from its primary mission as a national nuclear security laboratory and its role in monitoring nuclear activity around the globe. This new suite of instruments, which centers on an aerosol mass spectrometer, provides detailed information on the chemistry of wildfire smoke particles. A mass spectrometer takes in samples, gives them an electric charge, then sorts them by the ratio of their electric charge to their mass. It’s a powerful means of identifying the elements and compounds in a complicated sample like smoke.

See the YouTube video.

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